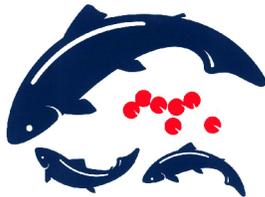
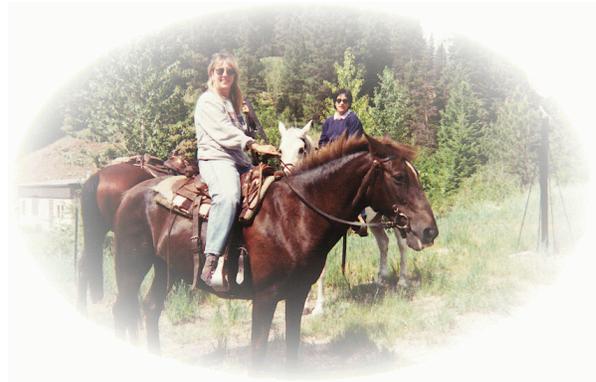


Annual Report for Fiscal Year 2001

Lower Snake River Compensation Plan Office

Boise, Idaho



LOWER SNAKE RIVER
COMPENSATION PLAN
Hatchery Program



**Lower Snake River Compensation Plan Office
Annual Report**

**Fiscal Year 2001
October 1, 2000 - September 30, 2001**

**U. S. Fish and Wildlife Service
1387 S. Vinnell Way, Suite 343
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INTRODUCTION

The Lower Snake River Compensation Plan (LSRCP) Office was established in 1982 by the U. S. Fish and Wildlife Service (FWS) to administer cooperator fisheries operations under the Lower Snake River Compensation Plan. The LSRCP was authorized by the Water Resource Development Act of 1976 (90 Stat. 2917) to offset fish and wildlife losses resulting from the construction and operation of Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Lock and Dam projects on the lower 150 miles of the Snake River in Idaho and Washington. The plan described fish hatchery developments as well as improvements to the dams and powerplants to improve smolt passage. This Office's primary responsibility is to administer the FWS funding of LSRCP fish hatchery operations, maintenance, and evaluations.

When authorized by Congress, construction responsibility for the LSRCP was assigned to the Walla Walla District, U.S. Army Corps of Engineers (Corps), while responsibility for OM&E funding was to be accomplished by "one of the Federal fisheries agencies." In 1977 the Corps, National Marine Fisheries Service (NMFS), and FWS signed an agreement stating that the FWS would budget for and administer OM&E funds for the LSRCP fish hatchery programs.

Public Law 99-662, approved November 17, 1986, modified the Water Resources Development Act of 1976 in accordance with recommendations contained in a report from the Chief of Engineers, dated March 6, 1985. The Chief's 1985 report confirmed the 1977 NMFS/FWS agreement on Page 2, Section 4.d with a directive that stated: "The U.S. Fish and Wildlife Service should be designated to fund the operation and maintenance of all fish rearing facilities." Regarding ownership of property, the 1985 Report stated in Section 5.3: "Transfer of jurisdiction over all Compensation Plan fish hatcheries, appurtenant facilities and lands to the U.S. Fish and Wildlife Service for operation, maintenance, and replacement shall occur upon completion of construction by the Corps of Engineers." The Corps has transferred fee title of LSRCP hatcheries and associated satellite facilities to the FWS as they were completed and became fully operational. Ownership of all but one LSRCP facility has been transferred to the FWS.

The Corps' estimated cost for construction of the authorized LSRCP off-project fisheries facilities (hatcheries and related satellite facilities) was approximately \$200 million; the FWS costs for annual OM&E are approximately \$16 million. All anadromous compensation and most resident fisheries compensation expenses are allocated to project power costs. As such, all expenses through FY2000 have been reimbursed with interest to the U.S. Treasury by the Bonneville Power Administration (BPA) from power revenues. Beginning with Fiscal Year (FY) 2001, the OM&E costs of the LSRCP have been reimbursed to the FWS by BPA through a direct funding Memorandum of Agreement (MOA).

The 1976 LSRCP legislation authorized what was believed to be sufficient anadromous fish hatcheries and associated satellite facilities to produce enough juvenile fish to return 18,300 fall chinook salmon, 58,700 spring/summer chinook salmon, and 55,100 steelhead adults to the project area (above Lower Granite Dam). The legislation also authorized sufficient resident fish hatcheries and stream enhancement projects to produce 93,000 pounds of trout annually to replace lost resident sport fisheries in Washington and Idaho.

The original program required expansion or construction of 10 hatcheries and 11 satellite trapping and release facilities in Idaho, Oregon, and Washington. The Pittsburg Landing, Big Canyon, and Captain John Rapids Acclimation Facilities were authorized in 1995 by a Congressional add-on to the Corps LSRCP Program and completed in 1996, 1997, and 1998 respectively. Due to lack of sufficient FWS operations funds, BPA directly funds the Nez Perce Tribe (NPT) to operate these fall chinook release facilities. Currently, Idaho Department of Fish and Game (IDFG) operates the four Idaho hatcheries, Oregon Department of Fish and Wildlife (ODFW) operates three Oregon hatcheries, Washington Department of Fish and Wildlife (WDFW) operates one fish hatchery complex in Washington, and the FWS operates two hatcheries in Idaho.

HIGHLIGHTS FOR FY2001

LSRCP facilities continue to produce and release salmon, steelhead and resident trout as part of their mitigation responsibility. In FY2001, more than 12.7 million salmon, steelhead and rainbow trout weighing were reared and released from LSRCP facilities (Appendix A). As in past years, the numbers and pounds of fish produced, release sites, and sizes were adjusted in 2001 to reduce impacts on listed species.

The release of LSRCP produced salmon and steelhead contributed significantly to the runs of chinook salmon and steelhead during 2001. The steelhead count to the Snake River in 2001 was about 250,000, while the count of spring/summer chinook salmon was about 190,000. Both are considered the largest returns since the Snake River dams were built. Although all data are not available, the LSRCP program likely achieved adult compensation goals for both species back to the project area. Many of the LSRCP trapping operations recorded record numbers of adults back to their weirs; for example, more than 10,000 summer chinook salmon made their way back to the South Fork Salmon River trap.

Oregon, Washington, and Idaho had fall and spring sport fisheries for steelhead, and all the states had early summer sport fisheries for spring/summer chinook salmon in 2001. It was estimated that more than 6,000 adult chinook salmon were harvested on the South Fork Salmon River in 2001. The chinook salmon sport fishery in Idaho, the best on record in many years, was estimated to have contributed more than \$46 million to the Idaho economy. Tribal fisheries throughout the basin were also considered very successful.

LSRCP facilities released nearly 6.0 million steelhead fingerlings and smolts in 2001, comparable to release numbers in 2000. More than 6.8 million spring, summer, and fall chinook salmon were released, many of the spring and summer chinook were part of conservation programs permitted by NMFS under the Endanger Species Act (ESA).

Considerable LSRCP staff time in FY2001 was spent on ESA consultations and modifications of biological assessments of hatchery production and release actions on listed Snake River steelhead and spring/summer and fall chinook, Redfish Lake sockeye salmon, Columbia River salmonids, and bull trout. The staff also worked within a variety of forums to promote the success of the LSRCP program while assuring adherence to state and federal guidelines regarding ESA, federal laws, court orders, and other issues. Fish hatchery production, evaluation studies, and operations will continue to be adjusted where appropriate to meet ESA requirements. We will be consulting

with NMFS in FY2002 on new biological opinion for 2002 and beyond.

The FWS and BPA signed a direct funding agreement in late September which allows BPA to directly fund the LSRCP Program for expenses incurred in FY2002 through FY2006. Under the new agreement the two agencies will work together to make the program as efficient as possible while ensuring that it has sufficient funding to meet its goals and other legal and tribal trust responsibilities. As part of these efforts the LSRCP staff developed a Performance Indicator plan for hatchery operations and maintenance.

FWS Regional and LSRCP staff continued to work with NMFS, state agencies, and tribal co-managers to renegotiate the US vs Oregon Columbia River Fish Management Plan (CRFMP). Although co-managers clearly identified agency and tribal production and harvest positions, little progress was made in reaching a long term agreement on a number of policy level issues. The existing CRFMP expired without agreement among co-managers and efforts were redirected toward reaching annual harvest agreements. Negotiations are scheduled to continue, with efforts focusing on developing the framework for the CRFMP and an agreement on the winter/spring fisheries. The process is very important because it will determine how the LSRCP and all other Columbia River Production Programs will be implemented for the next CRFMP period (the current plan lasted 10 years) .

The LSRCP staff once again played a leadership role in planning and implementing the IDAHO SALMON AND STEELHEAD DAYS. The event occurred in September 2001 and consisted of three student days and one evening of activities. About 3,500 4th grade students along with hundreds of teachers and parents from SW Idaho attended and learned about the biology of Idaho's anadromous fish resource. An evening barbecue with entertainment and education activities was once again part of the venue in 2001; more than 850 people (mostly adults) enjoyed grilled pen-reared salmon.

FY2001, LSRCP PROGRAM FUNDING SUMMARY

The LSRCP Office obligated \$15,603,712 in FY2001 (\$515,293 from carryover funds). This total included:

- \$10,085,314 for funding three state cooperator's hatchery operations, maintenance, and pathology work.
- \$2,879,283 for funding five state and tribal cooperators monitoring and evaluation studies, PIT tag purchases, genetics tissue analyses, and ESA activities.
- \$1,534,136 for funding six FWS offices for hatchery operations, fish health, and monitoring and evaluation efforts.
- \$402,302 for funding the Boise LSRCP Office management and coordination efforts.
- \$702,659 for Regional Office and FWS General Administrative Costs

OPERATIONS AND MAINTENANCE

A total of \$11,377,281 was obligated to WDFW, ODFW and IDFG or transferred to

Dworshak NFH, Hagerman NFH, and Idaho Fish Health Center (IFHC) for operation, maintenance and fish health monitoring of 11 hatcheries, 10 associated satellite facilities, and a fish health lab. This amount is 73 percent of our total obligation. Below are brief summaries of hatchery operation and maintenance activities in FY2001.

CLEARWATER RIVER BASIN

Clearwater Fish Hatchery

The Clearwater Fish Hatchery (FH) is operated by the IDFG and is located on the North Fork of the Clearwater River, 1.5 miles down stream from Dworshak Dam and 504 miles upstream from the mouth of the Columbia River. The facility became operational early in 1992. The LSRCP adult return goals for this program are 11,915 spring chinook salmon and 14,000 steelhead to the Snake River basin. The facility was designed to produce, for release, 1,369,500 chinook salmon smolts (15.0 f/lb) and 2,500,000 steelhead smolts (7.1 f/lb)

The Clearwater FH receives its water supply from Dworshak Reservoir via two pipelines. The primary (larger) pipeline draws water from just below the reservoir's surface while a secondary (smaller) pipeline draws water from a deepwater intake. A distribution tank near the hatchery allows mixing of water from the two pipelines so as to maintain desired water temperatures for various uses at the Clearwater FH. Significant maintenance was conducted on the water delivery system for the Clearwater FH this year. A water supply line to the Dworshak National Fish Hatchery (NFH) is also maintained from this water source.

Three satellite facilities are associated with the operation of the Clearwater FH. The Red River satellite facility, completed in November of 1986, is located on the Red River, 15 miles east of Elk City and 618 miles from the mouth of the Columbia River. The Crooked River satellite facility, completed in the spring of 1990, is located on the Crooked River and is 604 miles from the mouth of the Columbia River. The adult trapping facilities for this satellite are located one-half mile upstream of the mouth of the Crooked River, a tributary to the South Fork of the Clearwater River. The juvenile rearing ponds for the Crooked River satellite facility are located 10 miles upstream of the river's mouth. The Crooked River facility is 20 miles downstream of Red River. Due to the straying of chinook between the two drainages, the Red River and Crooked River stocks of spring chinook salmon were combined in 1997 to make the South Fork of the Clearwater River stock of spring chinook salmon,. The Powell satellite facility, completed in the summer of 1989, is located 122 miles east of the Clearwater FH at the headwaters of the Lochsa River on Walton Creek. The Powell satellite facility is 624 miles from the mouth of the Columbia River.

Dworshak National Fish Hatchery

Dworshak NFH is located at the confluence of the North Fork Clearwater and Clearwater rivers, 504 miles from the mouth of the Columbia River. The facility is operated by the U.S. Fish and Wildlife Service as a complex in conjunction with the operation of the Kooskia NFH. The primary purpose for the Dworshak NFH is the production of steelhead, however a facility expansion occurred in 1982 to accommodate an LSRCP spring chinook salmon production program. This portion of the facility is designed to produce 1.4 million spring chinook salmon smolts weighing 70,000 pounds. The adult return goal for Dworshak is 9,135 spring chinook to the Snake River basin.

Spring Chinook Salmon Program

A total of 1,333 spring chinook salmon were trapped at the Red River facility in 2001, which is over four times as many that were trapped in 2000 (315) (Table 1). Hatchery fish comprised over 84% (1,120) of the chinook salmon trapped at the Red River facility, while the remaining 213 chinook salmon were unmarked fish (this was nearly a seven-fold increase over the 31 unmarked fish trapped at this site in 2000).

Table 1. Adult chinook salmon and steelhead trapped at LSRCP facilities in FY2001.

SPECIES	TRAP SITE	HATCHERY	UNMARKED	TOTAL	PERCENT UNMARKED
Sp. Chinook	Red River Satellite	1,120	213	1,333	16.0%
Sp. Chinook	Crooked River Satellite	1,644	369	2,013	18.3%
Sp. Chinook	Powell Satellite (Walton Ck.)	1,893	72	1,965	3.7%
Sp. Chinook	Powell Satellite (Crooked Fork)	423	203	626	32.4%
Sp. Chinook	Sawtooth FH	1,427	676	2,103	32.1%
Sp. Chinook	Dworshak NFH	4,018	0	4,018	0.0%
Sp. Chinook	Lookingglass FH			653	
Sp. Chinook	Imnaha River Satellite	2,003	1,503	3,503	42.9%
Sp. Chinook	Tucannon River Trap	276	405	681	59.4%
Su. Chinook	South Fork Salmon River Satellite	9,144	1,778	10,922	16.3%
Fall Chinook	Lyons Ferry FH	2,046	140	2,186	6.4%
Steelhead	Sawtooth FH	3,018	37	3,055	1.2%
Steelhead	East Fork Salmon River Satellite	51	11	62	17.7%
Steelhead	Wallowa FH	1,262	0	1,262	0.0%
Steelhead	Big Canyon Satellite	862	71	933	7.6%
Steelhead	Little Sheep Creek Satellite	1,227	127	1,354	9.4%
Steelhead	Lyons Ferry FH	2,862	66	2,928	2.2%
Steelhead	Cottonwood Creek Satellite	774	0	774	0.0%
Steelhead	Touchet River Trap (Dayton)	37	188	225	83.6%
Steelhead	Tucannon River Traps	18	46	64	71.9%

A total of 2,013 spring chinook salmon were trapped at the Crooked River facility in 2001, as compared to 1,157 trapped in 2000 (Table 1). Hatchery fish made up over 81% (1,644) of the chinook salmon trapped at the Crooked River facility, while the remaining 369 chinook salmon

were unmarked (this was a five-fold increase over the 74 unmarked fish trapped at this site in 2000). Three hundred and seventy-seven adult chinook salmon were released above the weir on Crooked River for spawning (Table 2).

Table 2. Adult chinook salmon and steelhead released from LSRCP trapping facilities in 2001.

SPECIES/STOCK	TRAPPING SITE	RECEIVING WATER	NUMBER RELEASED
Sp. Chinook - SFClearwater R.	Red River Satellite	Red River (above weir)	253
Sp. Chinook - SFClearwater R.	Crooked River Satellite	Crooked River (above weir)	377
Sp. Chinook - SFClearwater R.	Red R. & Crooked R. Sat.	Meadow Ck. (SF Clearwater R.)	123
Sp. Chinook - SFClearwater R.	Red R. & Crooked R. Sat.	Mill Ck. (SF Clearwater R.)	41
Sp. Chinook - SFClearwater R.	Red R. & Crooked R. Sat.	SF Clearwater R. (for fishery)	1,177
Sp. Chinook - Lochsa R.	Powell Satellite	Colt Killed Ck.	219
Sp. Chinook - Lochsa R.	Powell Satellite	Up. Clearwater R. (for fishery)	611
Sp. Chinook - Up. Salmon R.	Sawtooth FH	Upper Salmon R. (above weir)	1,231
Sp. Chinook - Clearwater R.	Dworshak NFH	Selway R. - McGruder	800
Sp. Chinook - Clearwater R.	Dworshak NFH	Lolo Creek	403
Sp. Chinook - Clearwater R.	Dworshak NFH	Newsome Creek	303
Sp. Chinook - Clearwater R.	Dworshak NFH	Lower Selway River	1,607
Sp. Chinook - Imnaha R.	Imnaha Satellite Facility	Lick Ck. (Imnaha R.)	253
Sp. Chinook - Imnaha R.	Imnaha Satellite Facility	Big Sheep Ck. (Imnaha R.)	201
Sp. Chinook - Imnaha R.	Imnaha Satellite Facility	Imnaha River (above weir)	2,643
Sp. Chinook - Tucannon R.	Tucannon River Trap	Tucannon River (above weir)	575
Su. Chinook - SF Salmon R.	SF Salmon River Satellite	SF Salmon R. (above weir)	2,433
Su. Chinook - SF Salmon R.	SF Salmon River Satellite	SF Salmon R. (for fishery)	1,928
Su. Chinook - SF Salmon R.	SF Salmon River Satellite	Panther Creek	1,053
Su. Chinook - SF Salmon R.	SF Salmon River Satellite	EFSF Salmon R.	83
Su. Chinook - SF Salmon R.	SF Salmon River Satellite	Meadow Ck. (EFSF Salmon R.)	105
Steelhead - Upper Salmon R.	Sawtooth FH	Beaver Ck. (Salmon R.)	40
Steelhead - Upper Salmon R.	Sawtooth FH	Frenchman Ck. (Salmon R.)	40
Steelhead - Upper Salmon R.	Sawtooth FH	Champion Ck. (Salmon R.)	40
Steelhead - Upper Salmon R.	Sawtooth FH	4th of July Ck. (Salmon R.)	40
Steelhead - Upper Salmon R.	Sawtooth FH	Salmon R. (near Vienna)	40
Steelhead - Upper Salmon R.	Sawtooth FH	Salmon R. (above weir)	48
Steelhead - Upper Salmon R.	Sawtooth FH	Salmon R. (for fishery)	1158
Steelhead - East Fork "B"	EF Salmon River Satellite	EF Salmon R. (above weir)	10
Steelhead - Lookingglass Ck.	Lookingglass FH	Lookingglass Ck. (above weir)	118
Steelhead - Little Sheep Ck.	Little Sheep Ck.	Little Sheep Ck. (above weir)	785
Steelhead - Little Sheep Ck.	Little Sheep Ck.	Big Sheep Ck. (Imnaha R.)	354
Steelhead - Wallowa R.	Wallowa FH	Local fishing ponds	81
Steelhead - Wallowa R.	Big Canyon Facility	Local fishing ponds	125
Steelhead - Wallowa R.	Big Canyon Facility	Deer Ck. (above weir)	71
Steelhead - Snake R.	Lyons Ferry FH	Snake River	1,711
Steelhead - Wallowa R.	Cottonwood Trap	Cottonwood Creek	378
Steelhead - Tucannon R. (Wild)	Tucannon River Trap	Tucannon River (above weir)	10

The adult trap at the Powell facility on Walton Creek and the Fishery Resource trap on Crooked Fork Creek were operated to collect spring chinook salmon in the upper Lochsa River basin. Due to the numbers of chinook salmon in 2001 run, the Powell trap was opened and closed on an intermittent basis until July 23, when it remained open for the duration of the trapping season. The trap on the Crooked Fork Creek remained consistently in operation once it was installed on June 19. A total of 626 (423 hatchery and 203 wild) chinook salmon were captured at the Crooked Fork Creek trap (Table 1). A total of 379 chinook salmon collected at the Crooked Fork

Creek facility were transported to the Powell facility adult holding ponds prior to spawning. A total of 1,965 fish were captured at the Powell trap in 2001, which is approximately 22% more than in 2000 (1,602) (Table 1). Hatchery fish comprised over 96% of these fish, with the remaining 72 fish unmarked.

A total of 676 female South Fork Clearwater River spring chinook salmon stock were spawned in 2001. Eggs from 223 females were culled due to disease purposes. Adult chinook salmon trapped at the Red River and Crooked River facilities are transported to the Clearwater FH for holding prior to spawning. Eggs produced from these fish are destined for Clearwater FH production programs. Adult chinook salmon were held at the Red River facility prior to spawning to provide eggs for the Nez Perce Tribal Hatchery Program. Facility space limitations precluded the holding of all adult chinook salmon of this stock at the Clearwater FH prior to spawning. A total of 1,484,173 green eggs from the South Fork Clearwater River stock were collected (Table 3). A total of 356,336 green eggs from this stock were taken for the Nez Perce Tribal Hatchery Program.

Table 3. Chinook salmon and steelhead eggs collected from LSRCP spawning operations in 2001.

SPECIES / STOCK	TRAP SITE	GREEN EGGS
Sp. Chinook - SF Clearwater R.	Red River & Crooked River	1,840,509
Sp. Chinook - Upper Clearwater R.	Powell	2,067,596
Sp. Chinook - Upper Salmon R.	Sawtooth FH	1,804,892
Sp. Chinook - Clearwater R.	Dworshak NFH	1,195,486
Sp. Chinook - Imnaha R.	Imnaha River Satellite	441,000
Sp. Chinook - Lostine R. (endemic)	Lostine River Trap	144,000
Sp. Chinook - Up. Grande Ronde (endemic)	Upper Grande Ronde River Trap	36,000
Sp. Chinook - Catherine Creek (endemic)	Catherine Creek Trap	54,000
Sp. Chinook - Tucannon R. (Hatchery)	Tucannon River Trap	94,500
Sp. Chinook - Tucannon R. (Wild)	Tucannon River Trap	101,500
Su. Chinook - South Fork Salmon R.	South Fork Salmon River	1,793,667
Fall Chinook - Snake River	Lyons Ferry FH / Lower Granite Dam	3,576,956
Fall Chinook - Snake River	Lyons Ferry FH / Lower Granite Dam	613,382
Steelhead - Upper Salmon R.	Sawtooth FH	2,867,634
Steelhead - East Fork "B"	East Fork Salmon River	142,348
Steelhead - Wallowa R.	Wallowa FH	1,099,200
Steelhead - Little Sheep Ck.	Little Sheep Creek Trap	457,800
Steelhead - Lyons Ferry	Lyons Ferry FH	800,350
Steelhead - Wallowa R.	Cottonwood Trap	504,182
Steelhead - Touchet River (Wild)	Dayton Trap	67,861
Steelhead - Tucannon River (Wild)	Tucannon River Trap	113,563

A total of 795 female chinook salmon at the Powell facility were spawned. for Clearwater FH and Nez Perce Tribal Hatchery production programs. Eggs from 103 females were culled due to disease concerns. Hatchery personnel collected 2,067,596 green eggs for Clearwater FH production programs and 669,685 green eggs for the Nez Perce Tribal Hatchery Program (Table 3).

Spring distribution of Brood Year (BY) 1999 chinook salmon smolts from the Clearwater FH resulted in the stocking of 607,632 (47,872 lbs) smolts via acclimation or direct stream release (Table 4, Appendix A). Staff from the Clearwater FH released 799,745 (30,160) chinook salmon pre-smolts (BY2000) from acclimation sites on the Red River, the Crooked River and Walton Creek (Powell) in the fall of 2001 (Table 4). See Appendix A for a more detailed accounting of fish stocking from LSRCF programs in the Clearwater River Basin.

The Clearwater FH had over 2.3 million spring chinook salmon (BY2000) on hand at the end of FY2001. Nearly 5.1 million BY2001 spring chinook salmon eggs were incubating at the facility.

Table 4. Chinook salmon and steelhead distribution from LSRCF facilities in 2001.

HATCHERY	SPECIES	BROOD YEAR	LIFE STAGE	NUMBER RELEASED
Clearwater	Sp. Chinook	1999	Smolt	607,632
Clearwater	Sp. Chinook	2000	Pre-smolt	799,745
Dworshak	Sp. Chinook	1,999	Smolt	333,120
Sawtooth	Sp. Chinook	1999	Smolt	57,134
Lookingglass	Sp. Chinook	1999	Smolt	397,675
Lookingglass	Sp. Chinook	2000	Pre-smolt	51,865
Tucannon	Sp. Chinook	1999	Smolt	97,726
McCall	Su. Chinook	1999	Smolt	1,165,231
McCall	Su. Chinook	2000	Pre-smolt	46,975
Lyons Ferry	Fall Chinook	1999	Yearling	338,757
Lyons Ferry	Fall Chinook	1999	Yearling	*326,850
Lyons Ferry	Fall Chinook	2000	Sub-yearling	203,970
Lyons Ferry	Fall Chinook	2000	Sub-yearling	*1,764,716
Clearwater	Steelhead	2000	Smolt	736,954
Magic Valley	Steelhead	2000	Smolt	2,022,017
Hagerman NFH	Steelhead	2000	Smolt	1,229,286
Irrigon	Steelhead	2000	Smolt	1,185,026
Lyons Ferry	Steelhead	2000	Smolt	744,047

* Released via acclimation facilities managed by the Nez Perce Tribe.

Steelhead Program

Trapping operations at the Crooked River and Red River facilities captured seven and five steelhead, respectively, during the Spring of 2001. A total of 1,117,500 eyed eggs (BY2001) were received by the Clearwater FH from the Dworshak NFH for rearing to full term smolts.

Approximately 1.5 million additional steelhead eggs from the Dworshak NFH were incubated at the Clearwater FH in 2001. Eyed eggs were shipped to the Magic Valley FH (1,131,000), Hagerman NFH (200,000), and to the Potlatch public schools (15,000) for educational programs. An additional 149,000 of these eyed eggs were kept for Clearwater FH programs.

A total of 736,954 BY2000 steelhead smolts were released from the Clearwater FH in 2001. Direct stream releases accounted for 242,137 fish, while the balance was released via acclimation

facilities at Red River (249,270) and Crooked River (245,547) (Table 4, Appendix A). Over 570,000 BY2001 steelhead were on hand at the end of FY2001 for spring of 2002 releases.

A total of 4,018 spring chinook salmon returned to the trap at Dworshak NFH in 2001 (Table 1). The trap was opened and closed several times during the season to properly manage the large run of returning adults. In comparison, a total of 3,202 adult spring chinook salmon returned to the trap in 2000. Of those adults returning in 2001, 3,113 adults were stocked throughout the Clearwater River basin in cooperation with the Nez Perce Tribal Fisheries Department (Table 2). Maintenance and evaluation staff from the Idaho Fisheries Resources Office calculated 2001 adult return estimates attributable to the Dworshak NFH. Besides the number of fish returning to the trap, it was estimated that 3,039 fish were captured by sport fishers and 2,056 fish were unaccounted for; these total 9,113, which is about the adult return goal for the hatchery.

Hatchery personnel spawned 489 female spring chinook salmon in 2001, producing 1,195,486 green eggs (Table 3). Early rearing of salmon for the Dworshak program is conducted at the Kooskia NFH to take advantage of cooler rearing temperatures and ensure the target size at stocking is not exceeded.

A total of 333,120 BY1999 spring chinook salmon smolts were released from the hatchery in 2001 (Table 4, Appendix A). At the end of FY2001 the Dworshak FH had nearly 1.0 million spring chinook salmon (BY2000) on hand for a spring 2002 release. BY2001 eggs were also incubating at the facility.

SALMON RIVER BASIN

McCall Fish Hatchery

The McCall FH, operated by the IDFG, is located along the North Fork of the Payette River in the city of McCall, Idaho. McCall FH is designed to produce 1,000,000 summer chinook smolts weighing 61,300 pounds. McCall FH is the only LSRCP summer chinook facility and its adult return goal is 8,000 adults to the Snake River basin. The program operates a satellite facility on the South Fork of the Salmon River (SFSR) for trapping and spawning adult chinook salmon. The smolt release site is located on the South Fork of the Salmon River upstream from the weir.

Due to ongoing supplementation studies and the desire to maintain the ability to allow sport fisheries, the IDFG and LSRCP manages three South Fork of the Salmon River populations of summer chinook salmon. The population designated as “reserve” is developed by spawning hatchery fish with other hatchery fish. These fish are not currently listed under the Endangered Species Act (ESA); therefore sport fishing seasons can be opened for these fish (uniquely marked with an adipose fin clip) when large numbers of adults are expected to return to the basin. The population designated as “supplementation” can result from several different mating combinations, all which include an unmarked fish either as a parent or as a grandparent. These fish are listed under ESA and are marked only with a ventral fin clip (the adipose fin remains in tack). The population designated as “wild” is also listed and has no marks or tags. The majority of all wild and supplementation fish are passed above the weir to spawn naturally, with only a small portion of each population retained for ongoing supplementation research. None of the reserve fish are

intentionally passed above the weir.

Sawtooth Fish Hatchery

The Sawtooth FH, is located on the upper Salmon River near Stanley and is operated by IDFG. Its primary mission is to rear 2,235,000 spring chinook salmon smolts weighing 149,000 pounds and trap steelhead ("A" strain) to collect eggs for Hagerman NFH and Magic Valley FH. A satellite facility located on the East Fork of the Salmon River is associated with the Sawtooth FH, although its use has been limited in recent years. The satellite was designed to trap adult spring chinook for Sawtooth FH and steelhead ("B" strain) for Hagerman and Magic Valley and to serve as a direct stream release site. The goal for the Sawtooth FH program is to return 19,455 adult chinook salmon to the Snake River basin. The stream bank below the Sawtooth FH weir underwent a major overhaul in 2001, resulting in better stabilization of this area. Gravel was excavated from the hatchery intake in 2001.

Magic Valley Fish Hatchery

Magic Valley FH is located on the Snake River near Filer, Idaho and operated by IDFG. The hatchery was constructed on a commercial hatchery site that was purchased by the Corps in 1981. Steelhead were produced at the site from 1982 until 1986 when construction of the current facility began. The current facility became operational in 1987.

The Magic Valley FH was designed to produce 2,000,000 steelhead smolts weighing 291,500 pounds annually. The LSRCP adult return goal for the facility is 11,660 adults back to the Snake River basin. A combination of stocks (Sawtooth, Pahsimeroi, Dworshak-B, and East Fork-B) comprise the steelhead reared at the Magic Valley FH.

Hagerman National Fish Hatchery

The Hagerman NFH is located about 30 miles west of Twin Falls, Idaho, just outside the town of Hagerman in the Snake River valley, and is operated by the Service. The water supply for the facility consists of approximately 30,000 gallons per minute of 59^oF water from a series of springs from the Snake River aquifer. The current facility is designed to rear 1,400,000 steelhead smolts weighing 340,000 lbs. Hagerman NFH also retained the capacity to produce 100,000 lbs. of fish for FWS production commitments for programs other than LSRCP. Hagerman NFH has a goal of returning 13,600 adult steelhead to the Snake River basin.

Summer Chinook Salmon Program

The 2001 trapping season at the SFSR began with the installation of the weir on May 31st, considerably earlier than in normal years due to low flows. The first salmon was trapped on June 3rd. A total of 10,922 adult summer chinook salmon were trapped at the SFSR facility in 2001, which is the highest total ever (Table 1). The previous record for adults trap at this facility was in 2000 when 6,812 salmon were trapped. For the first time in the history of trapping operations at this facility, pickets were inserted into the bottom of the fish ladder to prevent access by fish to the ladder and trap and reducing crowding in the trap itself. Trap tenders estimated seeing 400 to 600

adult salmon in the pool below the weir on several occasions.

Of the 10,922 adult chinook salmon trapped at the SFSR satellite facility, 8,278 were from the reserve population (adipose fin clipped), 866 were from the supplementation population (ventral fin clip), and 1,778 were wild fish. A total of 2,433 fish (wild and supplementation only) were released above the weir for natural spawning (Table 2). Reserve population adults were released in the upper East Fork South Fork Salmon River (83) and an EF tributary, Meadow Creek (105), for spawning. A total of 1,053 reserve adults were released in Panther Creek, a tributary to the upper Salmon River, for a consumptive fishery. The Sawtooth FH received 164 reserve population adults for holding and spawning to provide eggs for the Shoshone Bannock Tribe's egg box program. Tribes and community groups received 2,009 reserve population adult chinook salmon for consumptive uses.

Due to the large numbers of returning reserve population adults, a sport fishing season for chinook salmon was authorized for the South Fork Salmon River. The harvest of adipose fin clipped adult chinook salmon during this season was about 6,079 fish. To enhance sport fishing opportunities, the hatchery staff released 1,928 reserve population adults in the South Fork Salmon River to be "recycled" through the fishery. These fish were uniquely marked to allow identification if they returned to the trap. A total of 417 females were spawned in 2001, providing 1,793,667 green eggs (Table 3). Eggs from 62 females were culled as a result of BKD analysis.

In the spring of 2001, a total of 1,165,231 summer chinook salmon smolts (BY1999) were released in the South Fork Salmon River from Knox Bridge (Table 4, Appendix A). Of these, 88,385 were supplementation fish and the balance were reserve population fish. Also 46,975 summer chinook salmon parr (BY2000) were stocked into the Stolle Pond for acclimation and subsequently a fall release as part of ongoing supplementation research. The McCall FH had over 1.0 million summer chinook salmon (BY2000) on hand at the end of FY2001 for release in spring 2002.

In addition to LSRCP program activities, the staff of the McCall FH is cooperating with the NPT on the Johnson Creek artificial propagation project (BPA funded). Not only does this include rearing summer chinook salmon smolts for release into Johnson Creek, but also assisting with spawning of adults from Johnson Creek. In 2001, a total of 166 adult salmon from Johnson Creek were held in separate holding tanks at the SFSR facility. The spawning operation resulted in 80,753 eyed eggs, after culling. IDFG also has a seasonal production/distribution program at McCall FH that is funded entirely by the IDFG.

Spring Chinook Salmon Program

The Sawtooth FH trap was put into operation for spring chinook salmon on May 24, and was operated until September 14, 2001. The East Fork Satellite trap was not operated for chinook salmon in 2001. The first salmon was trapped on May 28, 2001. A total of 2,013 spring chinook salmon were trapped in 2001 which is more than double the number of fish trapped in 2000 (986 fish) (Table 1). Six hundred and seventy-six salmon trapped were not marked and considered wild fish. A total of 1,231 salmon were released above the weir for natural spawning (Table 2). The spawning of 382 females resulted in the collection of 1,804,892 green eggs at the Sawtooth FH in

2001 (Table 3). After “eye-up” and culling for BKD, 1,266,454 eyed eggs remained at the facility, of which 1,102,098 are “reserve” population and 164,356 are “supplementation” population (see the McCall Fish Hatchery section for explanation of reserve and supplementation populations). Sawtooth was incubating over 2.4 million BY2001 salmon eggs of all stocks at the end of the fiscal year.

A total of 57,134 BY1999 supplementation spring chinook salmon smolts were released in the spring of 2001 from the Sawtooth FH (Table 4, Appendix A). At the end of FY2001, the Sawtooth FH had over 390,000 spring chinook salmon (BY2000) on hand for release in 2002.

Steelhead Program

The Sawtooth FH steelhead trapping began on March 19, 2001. A total of 3,055 steelhead were trapped which was considerably more than the 2,061 steelhead trapped in 2000 (Table 1). The number of unmarked steelhead trapped was 37. A total of 248 steelhead were released at various locations above the weir for natural spawning, and 1,158 were released down river from the hatchery for the fishery (Table 2). A total of 633 females were spawned, resulting in 2,867,634 green eggs which were incubated to the eyed stage at the Sawtooth FH and then shipped to the Magic Valley FH and the Hagerman NFH for rearing (Table 3).

The East Fork Satellite trap was operated from March 23 to May 11, 2001. Sixty-two East Fork “B” stock steelhead were trapped (Table 1). Eleven of these fish were unmarked. Ten fish were released above the weir for natural spawning (Table 2). Eggs were collected from 30 females, resulting in 142,348 green eggs (Table 3). These eggs were also incubated at the Sawtooth FH and shipped as eyed eggs to the Magic Valley FH for rearing.

A weir and trap located at the outlet of the Squaw Creek acclimation/release pond was monitored for adult East Fork “B” stock steelhead. Four hatchery “A” stock sized steelhead were trapped and subsequently marked and released into the Salmon River. No “B” stock sized were handled at this site.

In the spring of 2001, Magic Valley FH received approximately 2.5 million eyed eggs for BY2001 production. The proportion of stocks reared along with location of release sites is determined primarily through co-management efforts. At the end of FY2001 the Magic Valley FH had over 1.9 million BY2001 steelhead on hand for release as smolts in the spring of 2002.

In spring 2001, 2,022,017 BY2000 steelhead were hauled from the Magic Valley FH for release at various Salmon and Clearwater river locations (Table 4, Appendix A). All smolts, except 134,363 destined for the Lemhi River, received an adipose fin clip. Nearly 25% of all fish released (491,631) were coded wire tagged, and 2,701 fish were PIT tagged for monitoring and evaluation purposes.

In spring 2001, Hagerman NFH received a total of 1,377,858 BY2001 steelhead eggs, composed of Sawtooth (958,941), Clearwater (202,020), and Pahsimeroi (216,897) stocks. At the end of FY2001, Hagerman NFH had 925,795 BY2001 Sawtooth stock, 201,632 BY2001 Clearwater

stock, and 220,079 Pahsimeroi stock on hand for spring of 2002 release.

During the spring of 2001, Hagerman NFH hauled 1,229,286 BY2000 steelhead smolts for release at several sites, including the Little Salmon River, the upper Salmon River, the Yankee Fork of the Salmon River, and the American River and Newsome Creek in the Clearwater River basin (Table 4, Appendix A). Of these, 176,629 were Clearwater stock, 207,168 were Pahsimeroi stock, and 845,489 were Sawtooth stock.

A portion of the upper Salmon River Hagerman releases (566,386) were acclimated in the raceways at the Sawtooth FH before being released into the Salmon River. Fish were held from 3 to 17 days. Staff from the Sawtooth FH also monitored the Squaw Creek acclimation pond, which was stocked with 75,912 Magic Valley-reared “B” stock steelhead for volitional release. Nearly all smolts migrated from the pond.

In addition to LSRCF programs, our cooperators also work closely with a variety of entities on several projects. For example, Sawtooth FH personnel collect approximately 380,000 steelhead eggs for a stream side incubation program operated by the Shoshone-Bannock Tribe. Summer chinook salmon from the SFSR satellite are also held and spawned at the Sawtooth FH for this program. Over 535,000 steelhead eggs from the Pahsimeroi FH (IDFG) were incubated at the Sawtooth FH to take advantage of cooler incubation temperatures. Summer chinook eggs (653,898) from the Pahsimeroi FH were transferred to the Sawtooth FH for incubation and early rearing, to take advantage of pathogen free water. In return, Pahsimeroi FH personnel trap and spawn steelhead for LSRCF programs. The Sawtooth staff also assists the sockeye salmon recovery project with trap monitoring, adult holding, egg incubation, rearing, and stocking and help with IDFG’s catchable rainbow trout redistribution and mountain lake stocking. Johnson Creek summer chinook adults at held for spawning at the SFSR trap and juveniles are reared in the outflow channel of McCall FH.

GRANDE RONDE AND IMNAHA RIVER BASINS

Lookingglass Fish Hatchery

The Lookingglass FH, operated by the Oregon Department of Fish and Wildlife (ODFW), is located on Lookingglass Creek north of Elgin, Oregon. Although the facility was designed to produce 1.4 million spring chinook salmon smolts weighing 69,600 pounds, recent agreements among co-managing entities have reduced the desired fish rearing densities that consequently limits the current production capacity. The Imnaha River Satellite facility located on the Imnaha River near Gumboot Creek is operated by the hatchery staff. The adult return goal for the Lookingglass FH program is 9,070 adult spring chinook salmon.

Irrigon Fish Hatchery /Wallowa Fish Hatchery

The Irrigon FH, operated by the Oregon Department of Fish and Wildlife (ODFW), is located on the Columbia River near Umatilla, Oregon. Collector wells designed for 25,000 gallons per minute (gpm) supply water for the program which is targeted to rear 1,677,000 steelhead smolts

weighing 279,600 pounds. Irrigon FH's return goal is 11,200 adults back to the Snake River basin.

Irrigon FH operates in conjunction with three other facilities. The Wallowa FH located in Enterprise, Oregon along the Wallowa River, serves as a steelhead trapping, spawning and acclimation facility for steelhead reared at Irrigon. Hatchery personnel from the Wallowa FH also manage trapping, spawning, and acclimation operations at the Big Canyon Satellite facility, located at the confluence of Deer Creek and the Wallowa River, and the Little Sheep Creek Satellite facility in the Imnaha River drainage. The Wallowa facility can acclimate up to 600,000 steelhead smolts, while the Big Canyon and Little Sheep Creek acclimation facilities can accommodate up to approximately 250,000 smolts each.

Spring/Summer Chinook Programs

A total of 3,503 adult spring chinook salmon were trapped in 2001 at the Imnaha River trap, compared to 1,106 adults trapped in 2000 (Table 1). Of the fish trapped in 2001, 1,503 were unmarked and 2,003 were of hatchery origin. A total of 2,643 adult spring chinook salmon were passed above the weir for natural spawning and 253 and 201 were stocked into Lick Creek and Big Sheep Creek, respectively (Table 2). Fish designated for broodstock were transported to the Lookingglass FH and held until spawned. Ninety-eight Imnaha River females were spawned resulting in 441,000 green eggs (Table 3). The run of spring chinook salmon in the Imnaha River was more than sufficient to meet broodstock and escapement goals so consequently a sport fishery was opened.

A total of 653 adult spring chinook salmon were collected at the Lookingglass Creek trap (Table 1). The salmon that returned to the Lookingglass Creek trap were Rapid River stock spring chinook salmon, a stock that is no longer desirable in the region; therefore, a sport fishery was opened on Lookingglass Creek. The fisheries here and in the Imnaha River were the first chinook salmon sport fisheries in Northeast Oregon in over 25 years. Most of the fish collected at the Lookingglass Creek trap were stocked near the mouth of Lookingglass Creek to be "recycled" through the fishery. No eggs were collected from this stock of fish in 2001.

A conventional endemic brood program continued for the upper Grande Ronde River, Catherine Creek, and Lostine River in 2001. Although trapping and acclimation operations for this program are maintained as NW Power Act-funded Fish and Wildlife Program (FWP) projects, spawning and rearing the F₁ generation progeny to smolts continues at Lookingglass FH. Spawning operations resulted in 144,000 Lostine River stock, 36,000 upper Grande Ronde River stock, and 54,000 Catherine Creek stock green eggs being collected (Table 3).

All chinook salmon eggs collected at the Lookingglass FH are shipped to other LSRCP-funded facilities (Irrigon and Oxbow) for incubation and hatching. This is necessary because of a lack of chilled well water at the Lookingglass FH. All fry are returned to Lookingglass for final rearing.

About 397,675 BY1999 spring chinook salmon smolts were released in the spring of 2001 (Table 4, Appendix A). Of these, 123,112 Imnaha River stock (conventional program) smolts were stocked into the Imnaha River. The remaining smolts, a result of the captive broodstock program,

were stocked into the Lostine River (134,273), the upper Grande Ronde River (2,570), and Catherine Creek (137,720). A total of 51,865 BY2000 spring chinook salmon pre-smolts (Catherine Creek stock) were released into Lookingglass Creek during September of 2001. At the end of FY2001 there were nearly 800,000 spring chinook salmon (BY2000) being reared at the facility from conventional and captive broodstock programs.

This year marked the 7th year for collecting parr from the Lostine River, Catherine Creek, and the upper Grande Ronde River for the captive broodstock program. A total 1,504 wild spring chinook were collected from the Lostine River (500), the upper Grande Ronde River (502), and Catherine Creek (502) in 2001. This program was initiated as an effort to conserve and maintain several chinook populations for ultimate use in recovery of listed stocks under ESA and to enable the LSRCP to return to their compensation responsibilities in the future. Parr are initially reared at the Lookingglass FH, and then transferred to either the Manchester facility (salt water) in Washington or Bonneville FH (freshwater) in Oregon for rearing. When fish are expected to mature, they are transferred to Lookingglass FH maturation and spawning. As described above, the progeny of these broodstocks are raised for subsequent release as smolts back into their rivers of origin.

Steelhead Program

In 2001 a total of 1,262 steelhead were trapped at the Wallowa FH, compared to 968 trapped in 2000 (Table 1). Slightly more than 1.0 million eggs were collected from 229 females at the Wallowa FH (Table 3). A total of 862 steelhead returned to the Big Canyon Satellite facility in 2001, an increase of 476 over the 2000 total. No eggs were collected at the Big Canyon site. A total of 71 unmarked steelhead were released above the weir into Deer Creek from the Big Canyon Satellite (Table 2). Local fishing ponds were stocked with a total of 206 hatchery origin steelhead from the Wallowa and Big Canyon facilities.

A total of 1,354 adult steelhead returned to the Little Sheep Creek trap in 2001, compared to 520 in 2000 (Table 1). Of these, 127 were unmarked. State and tribal cooperators worked together to release 785 adults above the weir into Little Sheep Creek and 354 into Big Sheep Creek (Table 3). A total of 457,800 green eggs were collected from 109 females (Table 3).

Eggs from both spawning operations were incubated at the Wallowa FH until the eyed stage, and then shipped to the Irrigon FH for hatching and rearing. A total of 1,000,335 Wallowa stock and 358,630 Little Sheep Creek stock BY2001 eyed steelhead eggs were shipped to the Irrigon FH in 2001.

In 2001, the Irrigon FH delivered a total of 1,209,943 steelhead smolts to the three acclimation facilities (Table 4, Appendix A). Releases from these facilities are as follows: Wallowa FH - 551,519, Big Canyon Satellite - 290,835, and Little Sheep Creek Satellite - 242,456. There were 6,593 residual steelhead from the Wallowa and Big Canyon facilities that were stocked into local fishing ponds. Big Sheep Creek received a direct release of 100,216 steelhead smolts from the Irrigon FH in 2001. Over 1.1 million steelhead (BY2001) for the LSRCP program were on hand at the Irrigon FH at the end of FY2001.

SOUTHEAST WASHINGTON RIVER BASINS - SNAKE, WALLA WALLA, TUCANNON, TOUCHET, AND GRANDE RONDE RIVERS

Lyons Ferry Fish Complex - Lyons Ferry and Tucannon Fish Hatcheries

Programs at the Lyons Ferry FH and the Tucannon FH work in conjunction to form the basis for the Lyons Ferry Fish complex managed by the Washington Department of Fish and Wildlife (WDFW). The Lyons Ferry FH, the largest LSRCP facility, is located at the confluence of the Palouse and Snake Rivers in Southeast Washington. The facility, originally operated as two independent facilities, was designed to produce 1,169,500 (116,400 lbs.) steelhead smolts, 9,162,000 (101,800 lbs.) fall chinook salmon smolts, 132,000 (8,800 lbs.) spring chinook salmon smolts, and 45,000 pounds of trout for resident fishery programs. Adult return goals, to the basin, for this program include 4,656 steelhead, 18,300 fall chinook salmon, and 1,148 spring chinook salmon. Staff from the complex oversee operations of steelhead acclimation facilities on the Touchet River, near Dayton, Washington, and on Cottonwood Creek in the Grande Ronde River basin. The Cottonwood facility also serves as an adult steelhead trapping site for egg collections.

The Tucannon FH is located on the upper Tucannon River. The primary production goal for this facility is the production of 41,000 pounds of trout for resident fishery programs. A spring chinook salmon trapping also occurs at Tucannon FH. Staff manages the Curl Lake spring chinook salmon acclimation facility a few miles upstream of the FH on the Tucannon River.

Spring Chinook Salmon Program

Spring chinook salmon returns to the Tucannon River trap totaled 681 in 2001, compared to 205 in 2000 (Table 1). Of the fish trapped, 405 were unmarked and 276 were of hatchery origin. A total of 575 fish were passed above the weir to spawn naturally (Table 2). Twenty-seven hatchery origin females were spawned, producing 94,500 eggs, while 29 wild steelhead females yielded 101,500 eggs (Table 3). A total of 97,600 BY1999 Tucannon River spring chinook salmon smolts were released from the Curl Lake acclimation facility in 2001 (Table 4, Appendix A).

A cooperative FWP captive broodstock project is carried out at the Lyons Ferry Fish Complex. A total of 126 BY1997 captive female chinook salmon were spawned in 2001, producing 315,000 eggs. Spawning of 54 BY1998 females yielded 64,800 eggs for this program. At the end of FY2001, over 950 Tucannon River spring chinook salmon from various brood years remained at the Lyons Ferry FH as part of the captive broodstock program. In addition, over 575,000 Tucannon River stock eggs, from both captive and endemic programs, were incubating at the Lyons Ferry FH. Approximately 119,108 BY2000 juveniles of this stock were also on hand.

Fall Chinook Salmon Program

A total of 2,186 fall chinook salmon voluntarily entered the trap at the Lyons Ferry FH in 2001 (Table 1). Although the trap was opened and closed throughout the trapping season due to the size of the run, the number trapped was similar to the 2,250 trapped in 2000. Trapping operations

at the Lower Granite Dam produced 2,452 adult fall chinook salmon that were transported to the Lyons Ferry FH. Similar operations at the dam yielded 1,934 adults in 2000. During the spawning process, the origin of the fish must be verified to determine the appropriate use for the gametes from an individual fish. Only eggs from “Snake River origin” fish are used for LSRCF programs. Eggs from females considered strays or of unknown origin may be collected, however these eggs are not used for LSRCF programs. The concerted effort to spawn only Snake River stock fall chinook salmon with each other is of particular importance because they are listed as threatened under the ESA. Spawning of 1,040 “Snake River origin” fall chinook salmon produced 3,576,956 eggs (Table 3). A total of 613,382 egg were collected from “stray” fall chinook salmon.

A total of 338,757 BY1999 fall chinook salmon yearlings were released into the Snake River at the Lyons Ferry FH (Table 4, Appendix A). In addition, 203,970 BY2000 sub-yearlings were released at the same location. In a cooperative venture between WDFW, NPT and FWS, yearling and sub-yearling fall chinook salmon are transferred to the three acclimation sites within the basin operated by NPT. The Captain John’s Rapids and Pittsburgh Landing acclimation facilities, both located on the Snake River below Hells Canyon Dam, received 104,592 and 105,991 BY1999 yearlings, respectively. After the yearling release, they received for acclimation 501,440 and 400,795 BY2000 sub-yearling fall chinook salmon, respectively. The Big Canyon site on the Clearwater River received 116,267 BY1999 yearling and 862,481 BY2000 sub-yearling fall chinook salmon for acclimation and release. A total of 113,525 BY2000 sub-yearling fall chinook salmon were provided to NMFS and NPT for research purposes. Over 970,000 BY2000 fall chinook salmon were on hand at the end of FY2001 at the Lyons Ferry FH.

Steelhead Program

A total of 2,928 steelhead were trapped at the Lyons Ferry FH with 1,711 released back into the Snake River for the fishery (Table 1, Table 2). A total of 3,808 steelhead returned to this trap in 2000. Eggs (800,350) were collected from 154 females in 2001 (Table 3). Releases of Lyons Ferry steelhead stock smolts (BY2000) are as follows: A) 53,551 to Snake River at Lyons Ferry, B) 102,765 to Touchet River via the Dayton acclimation pond, C) 121,390 to Tucannon River, and D) 103,980 to Walla Walla River (Table 4, Appendix A). Approximately 452,000 BY2001 Lyons Ferry steelhead were on hand at the end of FY2001.

Trapping operations at the Cottonwood facility produced 774 adult steelhead, of which 378 were released upstream of the weir into Cottonwood Creek (Table 1, Table 2). There were 291 steelhead trapped in 2000 at this site. Facility personnel spawned 97 females to collect 504,182 steelhead eggs (Table 3). A total of 215,584 BY2000 smolts were acclimated and released at this site (Table 4, Appendix A). An additional 50,270 BY2000 steelhead were released into local fishing ponds in Southeast Washington. Over 190,000 BY2001 Wallowa stock steelhead were on hand at the end of FY2001.

A trapping operation on the Touchet River, near Dayton, Washington yielded 35 unmarked and 188 marked adult steelhead (Table 1). Fourteen females were spawned, producing 67,861 eggs (Table 3). A total of 36,487 BY2000 smolts from this stock were released into the Touchet River in 2001 (Table 4, Appendix A). Approximately 90,000 Touchet River stock steelhead (BY2001)

were on hand at the end of FY2001.

A trapping operation on the lower Tucannon River yielded 46 unmarked and 18 marked adult steelhead of which 10 unmarked were passed above the weir to spawn naturally (Tables 1 and 2). Fifteen females produced 113,563 eggs during spawning operations (Table 3). A total of 60,020 BY2000 smolts were released from the Tucannon FH in 2001 (Table 4, Appendix A). Over 48,000 Tucannon River stock steelhead (BY2001) were on hand at the end of FY2001.

Rainbow Trout Program

The Lyons Ferry Fish Complex manages the LSRCP resident trout production program. During FY2001, the Lyons Ferry FH stocked 146,744 rainbow trout weighing 62,210 pounds into local fishing ponds and inland lakes in Southeast Washington (Table 4, Appendix A). In addition, 61,255 and 25,245 rainbow trout were stocked into the lower Salmon and Clearwater rivers in Idaho. The Tucannon FH releases 170,141 rainbow trout for this program. At the end of FY2001, the Lyons Ferry FH had over 87,000 rainbow trout on hand for this program.

MONITORING AND EVALUATIONS

The LSRCP obligated \$2,757,300 for monitoring and evaluation (M&E) studies and PIT tag costs related to its program in FY2001. Entities receiving funding included IDFG, ODFW, WDFW, FWS Idaho Fishery Resource Office, and the Nez Perce Tribe (NPT) and Confederated Tribes of the Umatilla Indian Reservation (CTUIR). The LSRCP Office staff met with representatives from each cooperating entity in a variety of settings to discuss issues dealing with specific items to budgets to proposal modifications. Below is a brief summary of the FY2001 M&E programs for each of the cooperating entities. Individual M&E program reports can be obtained from the LSRCP office.

Idaho Department of Fish and Game

The goal of the IDFG LSRCP monitoring and evaluation (M&E) program is to identify hatchery rearing and release strategies that will allow the LSRCP program to meet its compensation requirements. IDFG M&E efforts are divided among *Hatchery Evaluation Studies* (HES), a *Harvest Monitoring Program* (HMP), and a *Coded Wire Tag Analysis Project* (CWT). IDFG's LSRCP M&E program requires a close cooperative effort among staff dedicated to HES, HMP, and CWT projects.

HES studies concentrate on determining relationships between hatchery practices and adult returns. The studies conducted by the HES staff include monitoring and evaluation of hatchery rearing; comparison and analysis of size, time, and location of releases; and documentation and analysis of adult returns. By necessity, these studies are long-term monitoring and trend studies.

Several HES projects initiated in previous years to address specific hatchery concerns and needs were continued in FY2001. These include assessing migration characteristics of hatchery-reared fish; documentation and analysis of straying of hatchery chinook salmon; Natures rearing studies;

time and size of release studies, analysis of steelhead acclimation, and comparison of spawn timing.

HES staff assisted with and provided technical guidance on a variety of other projects in FY2001. They assisted with tagging operations, tissue sample collection for genetics studies, fish transfers, weir installations, and creel station operations. The HES team also provided information to develop and facilitate annual marking and tagging plans for steelhead and chinook salmon. The HES staff maintains historic run spreadsheets, reviews hatchery run reports, coordinates CWT and mark databases, responds to numerous data requests from outside entities, participates in the NWPPC sub-basin planning process, and develops LSRCP funding proposals.

The HMP staff conducted creel surveys on the Clearwater, Snake and Salmon rivers to document the LSRCP contribution to fisheries in Idaho. Information gathered from creel efforts included recovery of CWT's; age, sex, and length information; and information concerning hatchery/wild ratios in the fishery. The HMP staff spent a great deal of time compiling and analyzing data, completing reports, determining run projections, and responding to data requests.

IDFG maintains a lab for reading and analyzing coded wire tags. LSRCP funds a portion of this effort to document LSRCP adult returns and their contribution to fisheries. Actual marking costs for fish reared at LSRCP facilities in Idaho are included in individual hatchery budgets.

HES, HMP and CWT staff devoted a considerable amount of time to coordinating research and management activities for the LSRCP program. Staff attended coordination meetings for the Sawtooth, Clearwater, and McCall FH's and Dworshak and Hagerman NFH's. Information on broodyear management, run information, projected adult returns, weir management plans, fish marking plans, fish health, sport fisheries, research and future needs are developed at these meetings. The staff also participated in hatchery evaluation team meetings, IDFG anadromous meetings, and technical oversight meetings for other projects (e.g. captive brood). Finally, additional time was spent training new personnel as IDFG experienced a substantial turnover in the LSRCP-oriented staff.

Oregon Department of Fish and Wildlife

ODFW's evaluation program includes: 1) monitoring and evaluating hatchery practices; 2) investigating size, time, and location of release of hatchery-reared juveniles; 3) marking activities (CWTing, branding); 4) assisting with disease monitoring efforts; 5) determining the LSRCP contribution to Oregon's steelhead fishery; 6) determining the effects on natural spawning populations; and 7) determining the success of maintaining the genetic integrity of native wild stocks potentially effected by the LSRCP program.

In 2001, Wallowa stock steelhead smolts were released into the Grande Ronde River basin and Imnaha stock steelhead smolts were released into the Imnaha River basin. Experimental groups to evaluate the effects of volitional releases on smolt to adult survival. Using a depletion method, estimates for smolts remaining in acclimation ponds were made. Since these estimates exceeded acceptable levels, remaining smolts were subsequently stocked into nearby ponds for put and take fisheries. ODFW M&E personnel estimated that the density of residual hatchery

steelhead residing in streams near acclimation facilities was 32.6 fish/100m² and 20.0 fish/100m² in Little Sheep Creek and Deer Creek (Big Canyon Satellite Facility), respectively.

In 1997 ODFW began monitoring natural spawning of summer steelhead in NE Oregon and assessing the relationship between anadromous and resident forms of *O. mykiss*. These efforts were expanded in 1999 to include collection of samples for genetic analyses and were continued in 2001, the third year of a four-year sampling strategy. They are also investigating the feasibility of using otolith micro-chemistry analyses to identify maternal origin of juveniles. ODFW and their tribal co-managers hope to learn more about the characteristics and relationships of the various populations in NE Oregon and about the fate of hatchery adults that escape to their river of release but are not caught at traps or by anglers. Findings from this and the other studies will help determine if hatchery populations can be and should be derived from local resident populations.

ODFW M&E personnel collected wild, resident *O. mykiss* adults and anadromous Wallowa stock adults to conduct a breeding and life history experiment with various crosses among and between these two groups. Eggs were incubated and progeny were reared using standard steelhead production methods. After approximately one year of growth, progeny were PIT tagged and released into Deer Creek, a tributary to the Wallowa River. Detection of tagged fish from various groups was conducted at Snake and Columbia River dams to determine migration rates. Detection of tagged fish at the dams varied among breeding groups and ranged from a low of 16% for progeny of resident parents, to a high of 45% for progeny of anadromous parents. Detections of progeny from crosses between the resident/anadromous life history groups ranged from 25% to 28%.

ODFW personnel continued a collaborative effort with Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and NPT personnel to maintain a captive broodstock/propagation program that was initiated in 1995 with LSRCF funding. In 2001, spring chinook salmon smolts were released into the Imnaha River and at several locations throughout the Grande Ronde River basin. Releases were a result of production from both the conventional rearing program and the captive broodstock program. Survival of the two programs will be compared.

No rearing experiments of conventional programs were conducted on fish from BY1999 to BY2000. ODFW M&E personnel are planning experiments using Imnaha stock spring chinook (BY2001) to evaluate the effect of various feeding regimes on the number of jacks produced. Captive broodstock progeny are being used to evaluate the effects of parental rearing regime and BKD segregation.

ODFW M&E personnel estimated that 3,432 hatchery-produced, spring chinook salmon adults returned to the Imnaha basin in 2001 which represents 107% of the compensation goal. Estimates for hatchery produced, spring chinook salmon adults returning to the Grande Ronde River basin were 1,923 fish in 2001 which is 33% of the compensation goal. A total of 618 spawning redds were counted in the Imnaha River basin and 868 spawning redds were counted in the Grande Ronde River basin. Data from spawning ground surveys in 2001 were used to estimate spawning escapements of 3,229 spring chinook in the Grande Ronde River basin and 4,202 salmon in the Imnaha River basin.

Spring chinook salmon sport fisheries were opened on the Imnaha River and on Lookingglass Creek in 2001. ODFW M&E personnel monitored and evaluated the fisheries and estimated 323 hatchery-produced chinook salmon (adipose fin clipped) were caught and 302 were harvested on the Imnaha River. On Lookingglass Creek, M&E personnel estimated 741 hatchery produced chinook salmon were caught and 574 were kept.

Washington Department of Fish and Wildlife

WDFW's evaluations of fall and spring chinook are combined under one multiple-objective study including: 1) monitoring and evaluation of hatchery practices, juvenile outputs, adult returns (including homing studies), and contribution to fisheries; 2) time, size, and location of release (including acclimation) studies; and 3) evaluation of effects of hatchery releases on naturally producing chinook stocks (including parr density monitoring and spawning ground counts). Because the hatchery stocks are comprised entirely of endemic fall and spring chinook stocks, special attention is being paid to quantifying and monitoring genetic variables in each population. The following paragraphs summarize some of WDFW's LSRCP monitoring and evaluation efforts in 2001.

Fish from all release groups from the Lyons Ferry FH and the Tucannon FH were sampled prior to liberation to document growth parameters, fin clip quality, tag retention, and percent precocious males in releases. WDFW M&E personnel continued their ongoing efforts to determine out-migration timing and relative survival of salmon and steelhead released. The staff operated a trap near the mouth of the Tucannon River from March through November to estimate the number of emigrating salmon and steelhead smolts and biological data and abundance estimates was compared to previous years.

The M&E staff coordinated the tagging and marking of spring and fall chinook salmon and steelhead reared at the Lyons Ferry Fish Complex. Efforts included the use of approximately 6,800 PIT tags for emigration evaluations. Study groups were established to monitor and evaluate survival and return of releases in comparison with project goals.

WDFW M&E and hatchery personnel coordinated with NMFS personnel to ensure safe transport of fall chinook salmon trapped at Lower Granite Dam (LGD) to the Lyons Ferry FH for spawning. M&E personnel monitored the fall chinook salmon run and coordinated the return of excess fall chinook salmon broodstock adults to the Snake River above LGD. M&E staff assisted with spawning efforts and the recovery of coded wire tags. The staff continued efforts to determine the origin of all spawned fall chinook and remove known stray and unknown origin adults from the spawning process to maintain the genetic integrity of the broodstock. M&E personnel provided a detailed database of adult fall chinook salmon that returned to Lyons Ferry FH and to LGD to regional managers, and assisted NMFS personnel with the development of a run reconstruction at LGD. The fall chinook salmon run reconstruction is a central element to the *U.S. vs Oregon* mandated annual management agreement for the Columbia River.

A severely depressed spring chinook salmon population in the Tucannon River was the impetus for a captive broodstock program initiated in 1997. WDFW M&E personnel assisted the hatchery staff with selection and ponding of juveniles, selection and spawning of ripe adults, and coded

wire tag marking of juvenile fish. WDFW M&E personnel will continue to direct the program, with the goal of rebuilding this spring chinook salmon population, though 2006.

M&E personnel trapped adult steelhead on the Touchet and Tucannon rivers and on Menatchee Creek to assess the status of ESA listed natural populations. The staff collected adult steelhead for broodstock and assisted Lyons Ferry FH personnel with spawning efforts. The M&E staff completed the second year of a five year study on the development and success of endemic brood steelhead reared in a hatchery.

The staff assisted with coded wire tag recoveries from steelhead as part of a three-year study to determine the effects of different marking and tagging techniques on adult returns. The staff began summarizing the results of this study for the development of a journal article.

A fall chinook salmon spawning survey was completed on the lower 12 miles of the Tucannon River. The staff documented the number of spawning redds and collected biological data and genetic samples from carcasses. Estimates for total spawning escapement were determined.

Spawning ground surveys for steelhead were conducted on index sections of the Touchet and Tucannon rivers and Asotin Creek. Spawning escapement into these survey areas was also estimated. M&E personnel completed electro fishing surveys of index sites to estimate juvenile steelhead site densities and calculate river system abundance by age class for the rivers.

M&E personnel conducted spring chinook salmon spawning surveys of the Tucannon River and Asotin Creek. Redd construction enumerations and estimates of spawning escapement (both hatchery and wild origin) were made. Estimates of egg deposition from these tasks are coupled with juvenile abundance sampling and smolt trapping to estimate egg to smolt and smolt to adult survivals which are critical biological indices of population health and stability.

The M&E staff conducted a creel survey of steelhead sport anglers throughout Southeast Washington to recover coded wire tags and document the level of sport harvest. Estimation of harvest of all fish with unique coded wire tag codes was made and provided to regional researchers.

The staff completed an ESA Section 10 annual report for the Tucannon River spring chinook salmon program, along with spring and fall chinook salmon annual reports. Staff members also attended numerous regional planning and management forums and provided data collected under the LSRCP program. WDFW M&E personnel served as regional experts on the status of salmon and steelhead populations (abundance and trends) in Southeast Washington.

Confederated Tribes of the Umatilla Indian Reservation

The Confederated Tribes of the Umatilla Indian Reservations (CTUIR) became cooperators in the LSRCP Program for the first time in FY1987. The CTUIR biologist assigned to the LSRCP program continues to be supervised by the LSRCP ODFW research coordinator because of the close coordination required for their joint studies in Oregon.

The objectives of the CTUIR's LSRCP 2001 monitoring and evaluation program were to 1) evaluate the re-introduction of spring chinook salmon into Lookingglass Creek using naturally produced adults or captive broodstock juveniles, 2) monitor the adult returns and juvenile life history of summer steelhead in Lookingglass Creek, 3) monitor and evaluate the summer steelhead populations in the Grande Ronde River basin, and 4) cooperate with ODFW to maintain ongoing LSRCP evaluation activities. These efforts continued in 2001.

The Lookingglass Creek study activities in 2001 were to: 1) evaluate the production of naturally spawning adult spring chinook salmon, 2) determine migration parameters of pre-smolts released in 2000, 3) determine genetic diversity and life history characteristics of returning adult spring chinook salmon, 4) assess ecological interactions between spring chinook and the environment, and 5) cooperate on the development of an endemic spring chinook salmon broodstock.

Summer steelhead activities conducted in 2001 included: 1) monitor and evaluate survival and migration parameter for summer steelhead produced in Lookingglass Creek, 2) describe adult summer steelhead populations returning to Lookingglass Creek, and 3) monitor population genetics of summer steelhead in the Grande Ronde River basin.

Nez Perce Tribe

The Nez Perce Tribe (NPT) conducted LSRCP monitoring and evaluation activities in FY2001. These activities include: 1) monitor LSRCP hatchery production performance, 2) describe natural production status and performance of anadromous salmonids in select waters, along with quantifying interactions between hatchery and natural juveniles, 3) promote genetic conservation, and 4) participate in coordination of LSRCP program, including hatchery operations and project specific permitting.

Emigration timing and survival of natural and hatchery juvenile chinook salmon and steelhead from the Imnaha River sub-basin was monitored with emigration traps and PIT tagging during the fall of 2000 and the spring of 2001. Fall juvenile emigration trapping occurred at an upper and lower site on the Imnaha River. Pre-smolts tagged at the lower site, which wintered in the Snake River, had a higher survival rate than fish tagged at the upper site which over wintered in the Imnaha River. Median arrival dates at Lower Granite Dam (LGD) were similar between the fall tagged fish from the lower (April 26) and upper sites (April 29).

Spring emigration trapping only occurred at the lower Imnaha River site. Both natural and hatchery origin fish were PIT tagged. Survival from the trap to LGD and to other mainstream dams was similar for the natural and hatchery chinook salmon smolts. Season wide survival estimates (+/- 95% CI) from the lower trap to McNary Dam for natural chinook salmon and hatchery produced chinook salmon released in the spring were 47.4% (+/- 1.5%) and 52.1% (+/- 5.3%), respectively. Median arrival dates for migration to LGD were April 28th for natural chinook salmon and April 29th for hatchery produced chinook salmon. Survival estimates to the lower Imnaha River emigration trap site for hatchery produced chinook salmon acclimated and released from the Imnaha Satellite Facility are pending.

PIT tagging of steelhead was accomplished cooperatively with the Imnaha River Smolt Monitoring Program project during the spring trapping period at the lower Imnaha River site. Survival rates (+/- 95% CI) for juvenile steelhead to McNary Dam were 16.7% (+/- 2.6%) for natural steelhead and 13.0% (+/- 3.5%) for hatchery produced steelhead.

Water temperature and stream flow were monitored at the lower trap site on the Imnaha River and six tributaries of the Imnaha River from January through June. Extremely low water flow conditions during 2001 prompted NPT M&E personnel to monitor water temperatures at multiple locations in Big Creek, a tributary to the Middle Fork Salmon River, and in the South Fork Salmon River.

NPT M&E personnel conducted multiple pass spawning ground surveys on Big Creek and the South Fork Salmon River. A total of 104 redds were observed in upper Big Creek. Salmon carcasses were sampled for biological data. Sampling efforts documented the presence of two hatchery origin fish (adipose fin clip) in upper Big Creek for the first time in 15 years of monitoring. The estimated adult chinook salmon age structure based on length frequency analysis of carcasses in upper Big Creek was 9.5% age III, 72.7% age IV, and 17.8% age V.

In the South Fork Salmon River, 469 spawning redds were counted downstream of the weir at the South Fork Satellite Facility. The estimated age structure of chinook salmon spawning in this area was 3.8% age III, 41.5% age IV, and 54.7% age V. Estimation of the percentage of hatchery origin and natural chinook salmon contributing to spawning is pending.

NPT M&E personnel monitored the escapement of adult steelhead into Cow and Lightning creeks, tributaries to the Imnaha River through the use of temporary weirs. A total of 84 steelhead (2 hatchery origin) were captured in Lightning Creek, while 66 (4 hatchery origin) were captured in Cow Creek

A sample collection strategy was developed and initiated in 1999 to allow for DNA genetic analysis of stock structure of steelhead in the Imnaha and Grande Ronde river basins. NPT M&E personnel are responsible for sample collection in eight streams, and the staff share sample collection responsibility with ODFW in two other streams. Sample analysis is being conducted by NMFS with LSRCP funding.

Post release monitoring of juvenile steelhead was conducted in Big Sheep and Lightning creeks. Electro fishing was used to determine changes in relative densities of natural and hatchery *O. mykiss* the summer after release of hatchery steelhead fingerling outplants in 2000. Data analysis for this project is pending.

NPT staff continued efforts in 2001 to document the reproductive success of hatchery adult chinook salmon out-plants in Lick Creek, a tributary to the Imnaha River. Snorkeling surveys have been conducted annually in Lick Creek since 1992. Hatchery origin adults have been out-planted in three of the last ten years, including 2001. Spawning redds have only been observed in Lick Creek in those years in which adults were out-planted. Juvenile chinook salmon were observed during the following each adult out-plant year.

NPT personnel have been banking adult male chinook salmon and steelhead gametes with the intent to establish a germ plasm repository for Snake River populations as an insurance policy against extirpation. LSRCP support of this FWP-funded effort is focused on preserving genetic material from LSRCP production facilities and natural production areas.

Coordination of NPT involvement in the LSRCP program with other LSRCP cooperators was accomplished through planning, process, and technical meetings, along with on the ground assistance during 2001. NPT personnel participated in 2001 Annual Operations Planning in Washington and Oregon, along with attending Dworshak NFH coordination meetings. ESA Section 10 permit requirements for listed salmonids were completed by and submitted through the Columbia River Inter-Tribal Fish Commission. Technical coordination meetings on gamete preservation, adult escapement levels and South Fork Salmon River chinook salmon genetic stock structure were held with the NMFS. Two project proposals were developed describing NPT LSRCP evaluations activities. The staff participated in the Northwest Power Planning Council's provincial review process. NPT staff assisted ODFW at the Lookingglass and Oxbow FH's with broodstock care, spawning, egg care, fish marking and pre-release sampling.

U.S. Fish and Wildlife Service - Idaho Fisheries Resources Office

The U.S. Fish and Wildlife Service's Idaho Fisheries Resources Office (IFRO) was funded by the LSRCP program in FY2001 to conduct hatchery monitoring and evaluation studies at the Dworshak and Hagerman NFH's. The IFRO's M&E program is similar to those conducted by the state agencies and tribes and is closely coordinated with IDFG and the NPT. The majority of their efforts focus on evaluating the progress being made at the Dworshak and Hagerman NFH's in meeting their LSRCP goals. Hatchery Evaluation Teams (HET) have been established for both federal hatcheries to develop and oversee research efforts. The M&E staff from the IFRO also facilitates inter- and intra-agency coordination and cooperation with FWS LSRCP hatchery production and evaluation programs in Idaho. The following narrative briefly describes some of the specific efforts by the IFRO M&E staff in 2001.

The Hagerman NFH HET developed a study to evaluate the use of Beta Glucans as a feed additive for summer steelhead to enhance the non-specific immune response system. This attempt was unique in that the use of Beta Glucans had never been used as an immunostimulant on fish smaller than 100 fish per pound. Although the data are still being analyzed, preliminary indications suggest the use of Beta Glucans on that size of fish may be ineffective, as several groups fed Beta Glucans prior to furunculosis vaccinations still broke with the disease.

The staff continued to work as cooperators on the Salmon Supplementation Studies in Idaho Rivers (ISS), participating with monitoring tributaries in the Clearwater basin. The staff also participated as cooperators at a number of state and regional meetings and forums.

FISH AND WILDLIFE SERVICE COOPERATIVE PROGRAMS

The LSRCP Office obligated \$238,433 to three other FWS programs which helped the

LSRCP Program accomplish its FY2001 mission. The Dworshak Fish Health Center receives LSRCP funds for diagnostic activities at Dworshak and Hagerman NFH's and for fish health monitoring coordination among State and Federally-operated LSRCP hatcheries. The FWS's Columbia River Fisheries Program Office provided their assistance to the LSRCP Office on regional issues, particularly with regard to those relating to the CRFMP renegotiations and regional biological opinions. The Abernathy Salmon Technology Center assists the LSRCP Program on regional planning, hatchery evaluations, and genetic conservation issues.

O **OTHER COOPERATIVE PROGRAMS**

The LSRCP Office works closely with all our cooperators to ensure that our programs compliment and sometimes supplement other anadromous fish programs they might be involved in. For example, the NPT, CTUIR, ODFW, WDFW, and IDFG have BPA-funded Fish and Wildlife Program projects which must be closely integrated with LSRCP programs because of joint use of facilities (rearing space), people, and equipment. These include the captive brood and rearing programs in Oregon and Idaho, the Grande Ronde endemic stock programs in Oregon, the Umatilla Hatchery, the NPT's Johnson Creek Program, IDFG's supplementation (ISS) studies, and the Redfish Lake sockeye salmon propagation program. The complexity of integrating these types of programs is becoming more and more difficult.

The LSRCP Office also works cooperatively with the states to implement a number of resident trout programs at no cost to the LSRCP program. ODFW utilizes several raceways at Irrigon FH to temporarily hold catchable rainbow trout for release in eastern Oregon. IDFG uses the Sawtooth, McCall, and Clearwater FH's to act as distribution points for catchable trout stocking in surrounding waters. The McCall FH and the Clearwater FH also rear resident trout for part of their life cycle. Lastly, cooperative agreements are in place with all State agencies for the temporary loan of equipment and vehicles between programs.

The LSRCP Office is funding NMFS Seattle genetics lab to analyze steelhead tissue samples collected by LSRCP cooperators in Oregon and Washington in 1999, 2000, and 2001. The results will help cooperators and other regional bodies (e.g. NMFS technical recovery teams) characterize steelhead populations in the Grande Ronde and Imnaha Basin. Additional samples from Idaho's streams will added to the effort. A report of finding is due in June 2002.

C **CORPS CONSTRUCTION ACTIVITIES**

The U.S. Army Corps of Engineers (Corps), Walla Walla District, has transferred all LSRCP facilities but the Captain John Rapids fall chinook acclimation pond to the Service. The Corps will collect information in spring 2002 to address pumping and sediment problems at Captain John's. When these problems have been addressed to the satisfaction of the Service that facility will be transferred to the FWS. Oregon's underground storage tanks are scheduled for replacement by the Service in FY2002. After the new tanks are installed, the Corps will be removing the old tanks and cleaning the sites. When those jobs are completed, all underground storage tanks will have been removed from LSRCP facilities.

FUTURE OUTLOOK

The LSRCP Office will initiate Section 7 consultations with the NMFS in FY2002. The biological opinion, which we expect will cover LSRCP actions over the next several years, will likely include a number of Reasonable and Prudent Alternatives and Conservation Measures for addressing adverse impacts of our non-local steelhead programs. Some programs may need only minor modifications to avoid jeopardy, whereas others may require significant changes such as phasing out non-endemic stock programs while converting to locally derived, listed stocks. Because of the recent court ruling on the listing and use of hatchery fish that are part of an ESU, NMFS will be revising their artificial propagation policy and develop rules on the use of hatchery-reared fish for conservation and recovery. We are not certain how these actions will affect our consultation efforts but expect they might delay issuance of a new opinion.

The 2000 Federal Columbia River Power System Biological Opinion described measures that are to be implemented by the action agencies (BR, COE, BPA) to offset adverse impacts of the hydroelectric facilities. Among those listed is a measure to investigate “reforms” of existing hatcheries (Action Item 169). The purpose of these reforms would be to greatly reduce adverse impacts of hatcheries on listed species. The action agencies would fund and be given “credit” for “offsite mitigation” resulting from these efforts. Action Item 169 stated that reform HGMP’s for all Columbia basin hatchery programs should to be completed and approved by NMFS by the 3-year check-in (end of FY2003). The LSRCP Office submitted a plan and budget to the Mountain Snake Provincial Review for developing reform HGMP’s for the LSRCP Program. Under this proposal, the LSRCP cooperators will form a working group who will develop reform HGMP’s for all LSRCP facilities which address mitigation goals, tribal trust responsibilities, and other legal mandates (e.g. CRFMP) and incorporate ongoing and planned harvest, habitat, and hydroelectric actions. Although developing plans will be difficult without final recovery goals and strategies, the group will work closely with the NMFS technical recovery teams and other ongoing planning efforts (subbasin planning) to formulate plans that are defensible, workable, and meet expectations. The LSRCP Office will negotiate with BPA for funding this effort beginning in 2002.

Most LSRCP chinook facilities are now operating and, are likely to continue operating, under Section 10 enhancement and/or research permits under the ESA. Although 2002 returns of hatchery-reared chinook are expected to be lower than the excellent returns in 2001, we anticipate very good returns with similar sport and tribal fishing opportunities and should achieve adult goals for many programs.

In the near term, the LSRCP will continue to maintain non-listed chinook salmon, steelhead, and rainbow trout programs for compensation of losses associated with the construction and operation of the four Lower Snake River dams, while ensuring that they do not jeopardize the listed stocks. As noted above, a new biological opinion from NMFS may lead to significant changes in some programs which may temporarily reduce compensation levels.

Seven years ago the LSRCP funded cooperators to initiate three captive spring chinook rearing programs in Idaho and three chinook broodstock programs in Oregon as conservation measures to assist in conservation and recovery. Several more traditional endemic stock chinook and steelhead programs were initiated during the same time period, and a captive brood spring chinook program in Washington was initiated in 2000. Full implementation of all these programs continues to be funded by the BPA through the NWPPC's Fish and Wildlife Program. The LSRCP Office has and will continue to participate in the technical teams to address ongoing captive broodstock issues. Eggs from captive-reared adults and adults trapped at endemic program weirs have been and will continue to be incorporated into LSRCP juvenile production programs.

LSRCP-funded monitoring and evaluation programs are being improved, redesigned, and refined each year to assist hatcheries in providing the best rearing conditions and rates of return of hatchery-reared juveniles and to improve our efforts to help conserve listed species. We will continue to spend about 20 percent of our budget on hatchery evaluation programs.

The LSRCP Office and BPA staff completed a five-year 2002 through 2006 direct funding agreement. As part of that agreement we worked with LSRCP cooperators to develop a Performance Indicator plan for hatchery operations. We intend to develop a Performance Indicator plan for the LSRCP monitor and evaluation program in 2002.

The LSRCP Office and its cooperators will continue to work with Columbia River basin co-managers to renegotiate the CRFMP and with the NWPPC, Columbia Basin Fish and Wildlife Authority, and BPA to develop Subbasin Plans and strategies. Although many current programs and perhaps some new programs will emphasize conservation of populations, the LSRCP will continue to provide compensate for losses associated with construction and operation of the Lower Snake River dams whenever and wherever possible.

We are optimistic that normal or above precipitation and good ocean conditions will result in return rates of hatchery-reared steelhead and chinook that meet LSRCP production model predictions. The excellent returns in 2001 indicates what might be expected under those conditions. In the mean time we will continue to do what we can to improve production release strategies, disease treatment and prevention, and smolt quality. Captive broodstock efforts, if successful, will help develop critical culture expertise needed in the immediate future for conservation of the most imperiled Snake River populations. If society decides to implement measures that significantly increase system productivity of listed populations, these conservation efforts will help speed salmon and steelhead recovery and should eventually result in widespread fishery opportunities for tribal, sport and commercial fishers.

LSRCP OFFICE

With the close of FY2001, five full time employees were being used for the operation of the LSRCP Program. Christopher Starr joined the LSRCP staff in 2001 and is in charge of coordinating operations and evaluation at LSRCP facilities. All staff members participated in

training activities during FY2001.

LSRCP Staffing

Daniel M. Herrig, LSRCP Coordinator, Project Leader
Joseph J. Krakker, Fishery Biologist
Christopher J. Starr, Fishery Biologist
Tammy A. Froscher, Secretary
Margaret M. Anderson, Cooperative Agreement Assistant

A vailable Reports

The LSRCP Office maintains a list and copies of annual hatchery O&M and M&E reports generated from all project activities. These are available from the LSRCP Office.

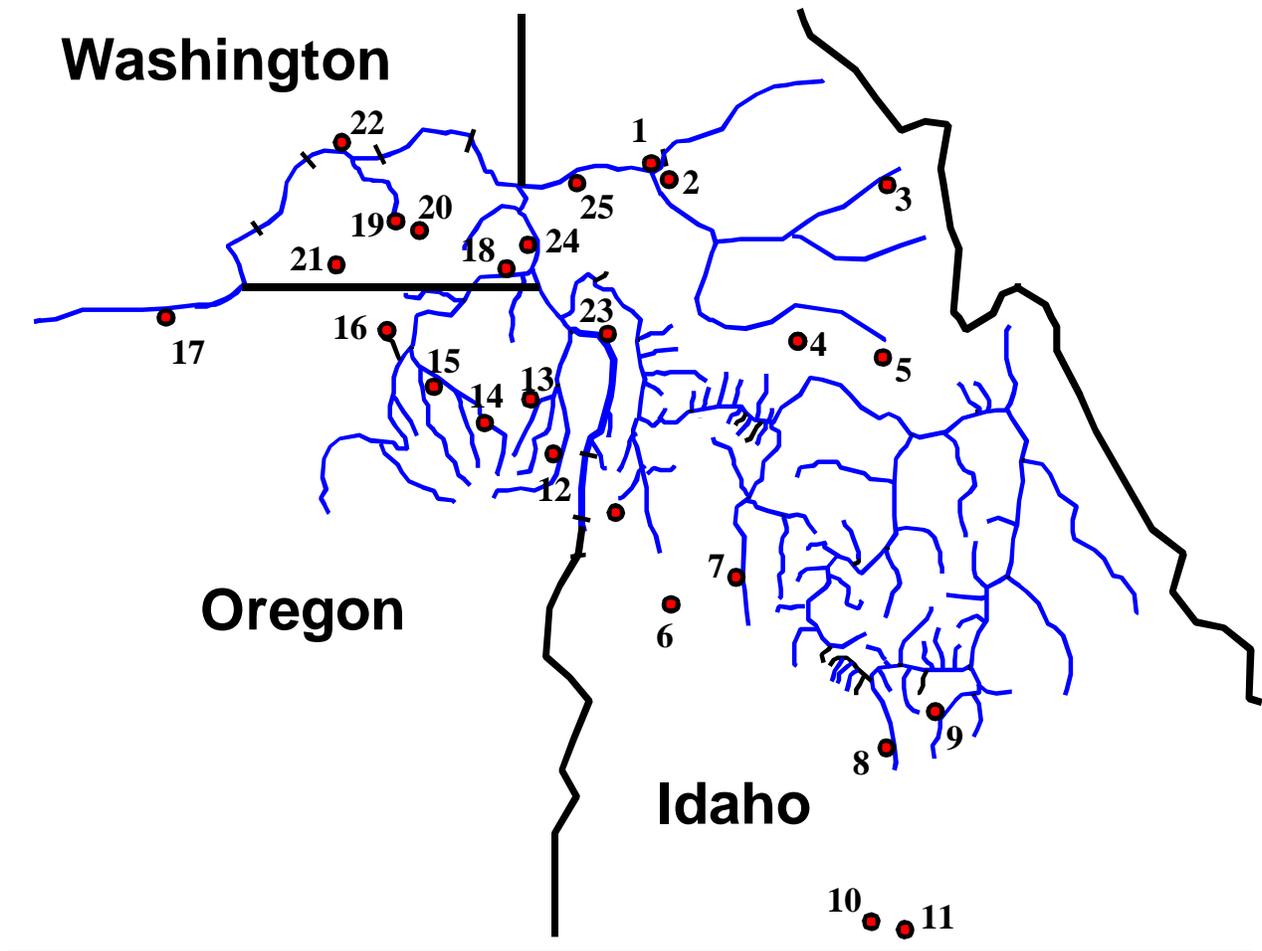
M eetings and Other Activities

The LSRCP staff continued involvement in a variety of state and regional forums which relate directly to the operations of the LSRCP program. The following is a summary of activities LSRCP staff members participated in during FY2001:

1. Northwest Power Planning Council Fish and Wildlife Program
 - Development of sub-basin summaries for the Columbia Plateau Province, Mountain Snake Province, and the Blue Mountain Province. Participated in reviews of proposals.
 - Submitted proposal in Mountain Snake Province to develop HGMP's for LSRCP programs to address artificial production reforms identified in the FCRPS bi-op.
 - Submitted project descriptions for LSRCP programs for scientific review.
2. US vs Oregon Columbia River Fish Management Plan renegotiations
 - USFWS technical representative in renegotiations for development of a new Columbia River Fish Management Plan and interim fishery and production agreements.
3. 4(d) Rule Process
 - Participated in development of HGMP for Touchet River endemic steelhead program.
4. Chinook Technical Oversight Committee (Captive Broodstock Programs)
5. Conservation Aquaculture Workshop
6. Regional workgroup to address excess hatchery production in Columbia River Basin
7. Fall Chinook Planning (umbrella management plan for Snake River fall chinook salmon)
8. Safety Net Artificial Production Program (SNAPP)

- Participated with cooperators to develop SNAPP identified in the FCRPS bi-op.
- 9. Joint Management Committee (BPA direct funding agreement)
 - Participated in the development of the direct funding agreement with BPA.
 - Development of Performance Indicator Plan for LSRCP hatcheries.
 - Regular coordination meetings
- 10. Salmon and Steelhead Days (Boise)
 - Assisted in the develop and implementation of this educational program for local elementary students
- 11. Initiated Building Energy Conservation Group
- 12. Mid-Snake River Waste Load Allocation Process
- 13. Environmental Compliance and Safety Reviews for LSRCP hatcheries
 - All LSRCP went through environmental compliance and safety reviews in 2001.
- 14. Northeast Oregon Hatchery planning process
 - NEOH planning team member
- 15. Johnson Creek Artificial Production Program planning process
 - JCAPE planning team member
- 16. Dworshak NFH Coordination Meetings
- 17. Hagerman NFH Coordination Meetings

APPENDIX C: LOWER SNAKE RIVER COMPENSATION FACILITIES MAP



Idaho Department of Fish and Game

- 1. Clearwater Fish Hatchery (FH)
- 3. Powell Satellite Facility (SF)
- 4. Crooked River SF
- 5. Red River SF
- 6. McCall FH
- 7. South Fork Salmon River SF
- 8. Sawtooth FH
- 9. East Fork SF
- 11. Magic Valley FH

Nez Perce Tribe

- 23. Pittsburg Landing SF
- 24. Captain Johns SF
- 25. Big Canyon SF

Oregon Department of Fish and Wildlife

- 12. Imnaha SF
- 13. Little Sheep Creek SF
- 14. Wallowa FH SF
- 15. Big Canyon SF
- 16. Lookingglass FH
- 17. Irrigon FH

Washington Department of Fish and Wildlife

- 18. Cottonwood Creek SF
- 19. Tucannon FH SF
- 20. Curl Lake SF
- 21. Dayton Pond SF
- 22. Lyons Ferry FH (salmon and trout)

Fish and Wildlife Service

- 2. Dworshak NFH Expansion
- 10. Hagerman NFH